

# Kojic acid

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**Kojic acid** ( $C_6H_6O_4$ ; 5-hydroxy-2-(hydroxymethyl)-4-pyrone) is a chelation agent produced by several species of fungi, especially *Aspergillus oryzae*, which has the Japanese common name *koji*. Kojic acid is a by-product in the fermentation process of malting rice, for use in the manufacturing of sake, the Japanese rice wine. It is a mild inhibitor of the formation of pigment in plant and animal tissues, and is used in food and cosmetics to preserve or change colors of substances. It is used on cut fruits to prevent oxidative browning, in seafood to preserve pink and red colors, and in cosmetics to lighten skin. Kojic acid also has antibacterial and antifungal properties.

## External links

- Kojic acid and enzymatic browning
- Fruit preservation
- Safety MSDS data

It is also used in skin diseases like MELASMA.

## References

- Yabuta T (1924). "The constitution of kojic acid, a gamma-pyrone derivative formed by *Aspergillus oryzae* from carbohydrates". *Journal of the Chemical Society* **125**: 575–587.
- Burdock FA, Soni MG, Carabin IG (2001). "Evaluation of health aspects of kojic kojic acid in food". *Regulatory Toxicology and Pharmacology* **33** (1): 80–101.

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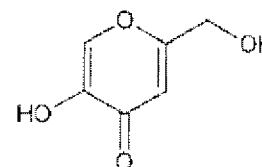
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**Kojic acid**



IUPAC name	5-Hydroxy-2-(hydroxymethyl)-4H-pyran-4-one
Other names	Kojic acid, 5-Hydroxy-2-(hydroxymethyl)-4-pyrone, 2-Hydroxymethyl-5-hydroxy-γ-pyrone

### Identifiers

CAS number	[501-30-4]
PubChem	3840
EINECS number	207-922-4
RTECS number	UQ0875000
SMILES	<span></span> <span>[show]</span>
InChI	<span></span> <span>[show]</span>

### Properties

Molecular formula	C <sub>6</sub> H <sub>6</sub> O <sub>4</sub>
Molar mass	142.11 g/mol
Appearance	Tan powder
Melting point	152 - 155 °C
Solubility in water	Soluble

### Hazards

R-phrases	R36/37/38
S-phrases	S22, S24/25

Except where noted otherwise, data are given for materials in their standard state (at 25 °C, 100 kPa)

Infobox references

# Safety data for kojic acid

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Glossary of terms on this data sheet.

The information on this web page is provided to help you to work safely, but it is intended to be an overview of hazards, not a replacement for a full Material Safety Data Sheet (MSDS). MSDS forms can be downloaded from the web sites of many chemical suppliers.

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## General

Synonyms: 5-hydroxy-2-(hydroxymethyl)-4H-pyran-4-one

Molecular formula:  $C_6H_6O_4$

CAS No: 501-30-4

EINECS No: 207-922-4

## Physical data

Appearance: tan powder

Melting point: 152 - 155 C

Boiling point:

Vapour density:

Vapour pressure:

Density ( $g\ cm^{-3}$ ):

Flash point:

Explosion limits:

Autoignition temperature:

Water solubility: slight

## Stability

Stable. Combustible. Incompatible with strong oxidizing agents.

## Toxicology

May be harmful by inhalation, ingestion and if absorbed through skin. Irritant.

### Toxicity data

(The meaning of any abbreviations which appear in this section is given here.)

IPR-MUS LD50 250 mg  $kg^{-1}$

### Risk phrases

(The meaning of any risk phrases which appear in this section is given here.)  
R36 R37 R38.

## Transport information

(The meaning of any UN hazard codes which appear in this section is given here.)

Hazard class: 6.1. Packing group: III

## Personal protection

Safety glasses, adequate ventilation.

[Return to Physical & Theoretical Chemistry Lab. Safety home page.]

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